ST-S320

SERVICE MANUAL

AEP Model
UK Model

SPECIFICATIONS

Tuner

Circuit system: FM stereo, FM/AM superheterodyne tuner
Quartz-locked PLL digital synthesizer system

FM tuner

Frequency range: 87.5 – 108 MHz
Antenna terminals: 75 ohms unbalanced
Intermediate frequency: 10.7 MHz
Sensitivity (at 46 dB quieting)
18.0 dBf, 2.2 μV (mono)
40.0 dBf, 24.5 μ (stereo)
Signal-to-noise ratio (at 40 kHz deviation)
74 dB (mono)
70 dB (stereo)

Harmonic distortion	wide	mono	0.04%
		stereo	0.05%
	narrow	mono	0.06%
		stereo	0.08%
IM distortion	wide	mono	0.04%
		stereo	0.05%
	narrow	mono	0.06%
		stereo	0.08%

Separation: 50 dB (at 1 kHz)
Frequency response: 40 Hz - 12.5 kHz ±0.5 dB
Selectivity (at 400 kHz)
80 dB (wide)
90 dB (narrow)
(at 300 kHz)
45 dB (wide)
70 dB (narrow)
Capture ratio: 1.0 dB
AM suppression ratio: 65 dB
Image response ratio: 70 dB
IF response ratio: 70 dB
Spurious response ratio: 80 dB
Muting threshold: 30 dBf
Automatic tuning threshold: 30 dBf
Output: 410 mV, 4.7 kohms (at 40 kHz deviation)

AM tuner

Frequency range: Except Italian model:
MW: 531 - 1,602 kHz
LW: 153 - 279 kHz
Italian model:
MW: 522 - 1,611 kHz
LW: 144 - 288 kHz
Antenna: AM loop antenna
External antenna terminal
Intermediate frequency: 450 kHz
Usable sensitivity (when AM loop antenna is used)
300 μV/m (999 kHz)
1 mV/m (216 kHz)
Signal-to-noise ratio: 54 dB (50 mV/m) (999 kHz)
50 dB (50 mV/m) (216 kHz)
Harmonic distortion: 0.3% (50 mV/m, 400 Hz)
Selectivity: 32 dB

— Continued on page 2 —

FM STEREO / FM-AM TUNER

SONY®

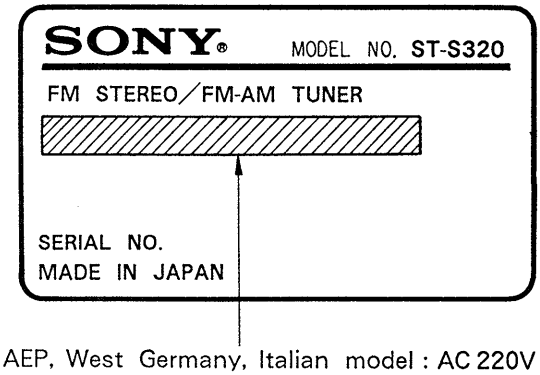
General

Power requirements	U.K. model: 240 V AC, 50/60 Hz European model: 220 V AC, (or 240 V AC adjustable by authorized Sony personnel), 50/60 Hz
Power ocnsumption	10 W
Dimensions	Approx. 430 × 85 × 295 mm (w/h/d) (17 × 3 3/8 × 11 5/8 inches)
Weight	Approx. 2.8 kg (6 lb 3 oz)
Accessories supplied	Remote control cord (1) Connecting cord (1) FM wire antenna (1) (Except West Germany model) AM loop antenna (1)

Design and specifications subject to change without notice.

MODEL IDENTIFICATION

—Specification Label—



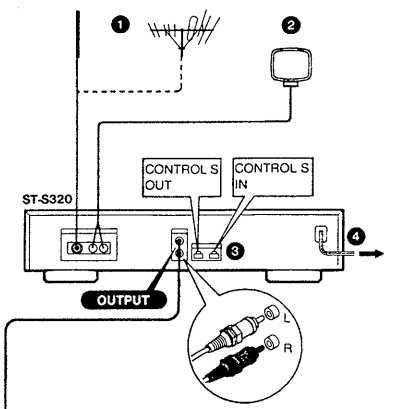
AEP, West Germany, Italian model : AC 220V 50/60Hz
UK model : AC 240V 50/60Hz

SAFETY-RELATED COMPONENT WARNING!!

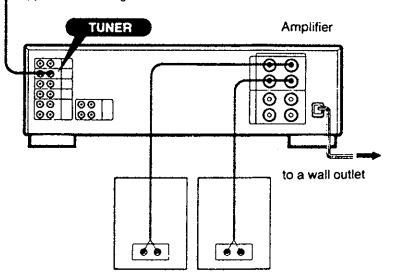
COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

1-1. CONNECTIONS

- Connect the AC power cord last. Make sure power is off.
- Cord plugs and jacks are color coded. Red plugs and jacks are for right channel (R) and white ones for left channel (L).

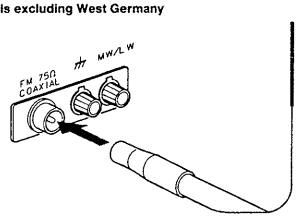


Supplied connecting cord



1 FM antenna

Models excluding West Germany

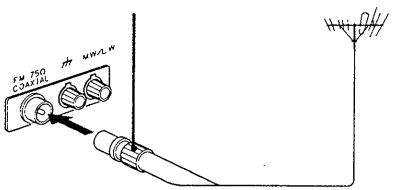


For better reception, connect to an outdoor antenna as shown on the right.

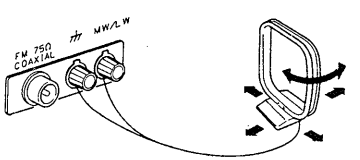
West Germany model

Outdoor FM antenna (75-ohm coaxial cable)

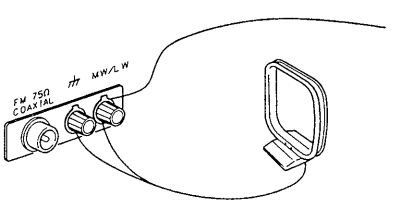
IEC standard socket connector



2 AM loop antenna (supplied)



For better reception, extend a 6 to 15-meter insulated wire out of doors.



3 CONTROL S connector (with the supplied remote control cord)

IN: Connect to the CONTROL S OUT connector of the optional Sony amplifier for whole audio system remote control.

OUT: Connect to the CONTROL S IN connector of other Sony equipment for whole audio system remote control.

4 Power cord

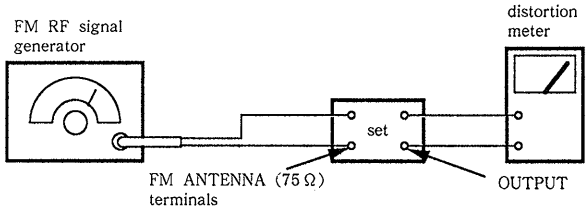
Connect the power cord of this unit to the AC OUTLET of the optional Sony amplifier. For timer activated reception, connect the power cord of the amplifier to the optional Sony audio timer.

SECTION 2
ELECTRICAL ADJUSTMENTS

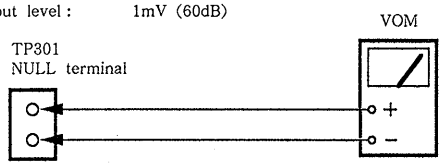
FM SECTION

FM DISCRIMINATOR ALIGNMENT (NULL and MONO Distortion)

Setting :



Carrier frequency : 98MHz
Modulation : 1kHz
Deviation : 40kHz
Output level : 1mV (60dB)

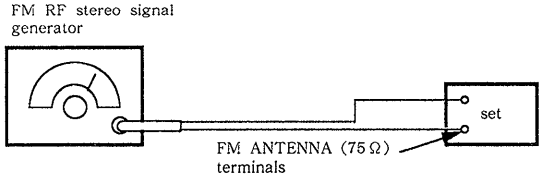


Procedure :

1. Tune the set to 98 MHz.
2. Adjust the T301 for 0 V reading on VOM. ...NULL
3. Adjust T302 for a minimum reading on the distortion meter. ...MONO Distortion.
4. Repeat the primary−side and secondary−side alignments several times.

FM METER ADJUSTMENT

Setting :



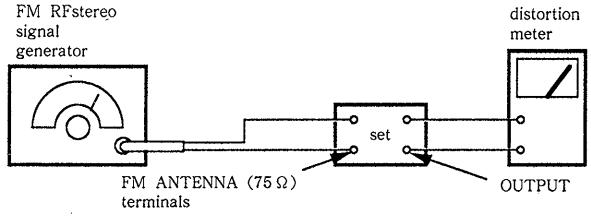
Carrier frequency : 98MHz (45dB)
Modulation : 1kHz
Deviation : 40kHz
Output level : 10mV (80dB)

Procedure :

1. Tune the set to 98 MHz by pressing the TUNING buttons.
2. Adjust RV102 so that the 10 point of the signal meter goes on.

FM STEREO SEPARATION ADJUSTMENT

Setting :



Carrier frequency : 98MHz
Output level : 1mV (60dB)
Modulation :
Audio 1kHz : 16.25kHz deviation (40.625%)
Sub channel 38kHz : 16.25kHz deviation (40.625%)
Pilot signal 19kHz : 7.5kHz deviation (18.75%)
Mode : stereo

Procedure :

Tune the set to 98 MHz

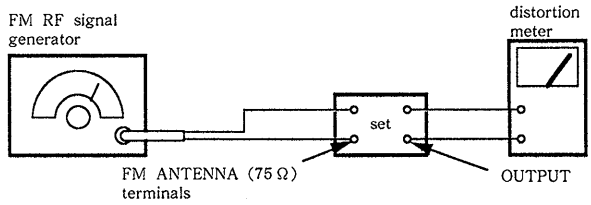
FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	ⓐ
R-CH	L-CH	ⓑ Adjust RV401 for minimum reading.
R-CH	R-CH	ⓒ
L-CH	R-CH	ⓓ Adjust RV401 for minimum reading.

L-CH Stereo separation : ⓐ − ⓑ
R-CH Stereo separation : ⓒ − ⓓ

The separations of both channels should be equal.

TUNED/FM IF GAIN ADJUSTMENT

Setting :



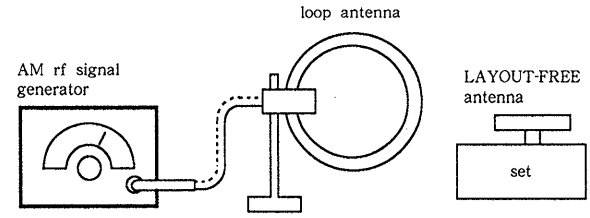
Carrier frequency : 98MHz
Modulation : 1kHz
Deviation : 40kHz
Output level : 17.8 μ V (25dB)

Procedure :

1. Push the IF BAND switch and put out the light the NARROW indicator in the fluorescent display.
2. Turn the semi-fixed resistor RV301 and stop a turn the RV301 when "TUNED" indicator is bright.
3. Push the IF BAND switch and put on the light the "NARROW" indicator in the fluorescent display.
4. Turn the semi-fixed resistor RV101 and stop a turn the RV101 when "TUNED" indicator is bright.

AM SECTION

Setting : BAND selector switch : MW or LW



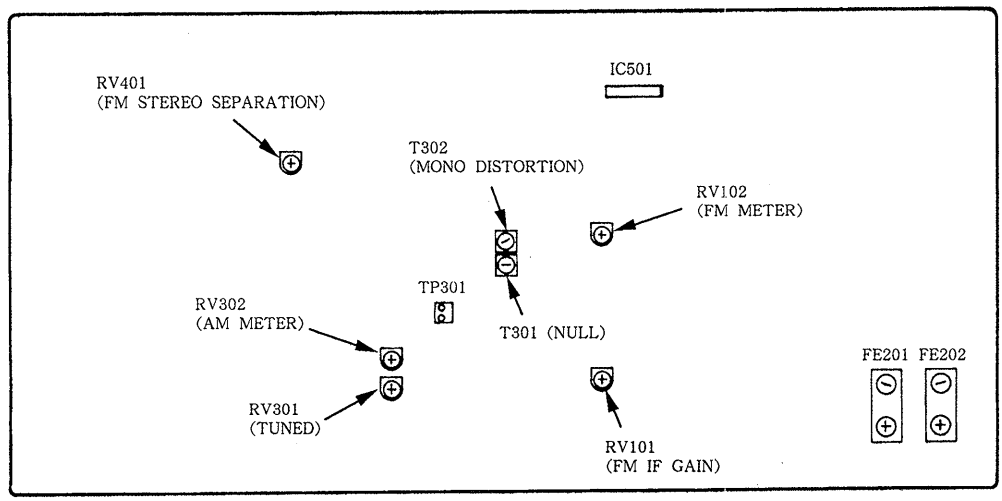
Modulation : 400Hz, 30% modulation

AM METER ADJUSTMENT

Procedure :

1. Set loop antenna so that LAYOUT-FREE antenna input level becomes 94dBμ/m.
2. Tune the set to LW : 216kHz.
3. Adjust the RV302 so that the 10 point segment of the signal meter goes on.
4. Turn the set to MW : 999kHz and check that the 10 point segment of signal meter goes on.

TUNER BOARD (Component Side)



SECTION 3
DIAGRAMS

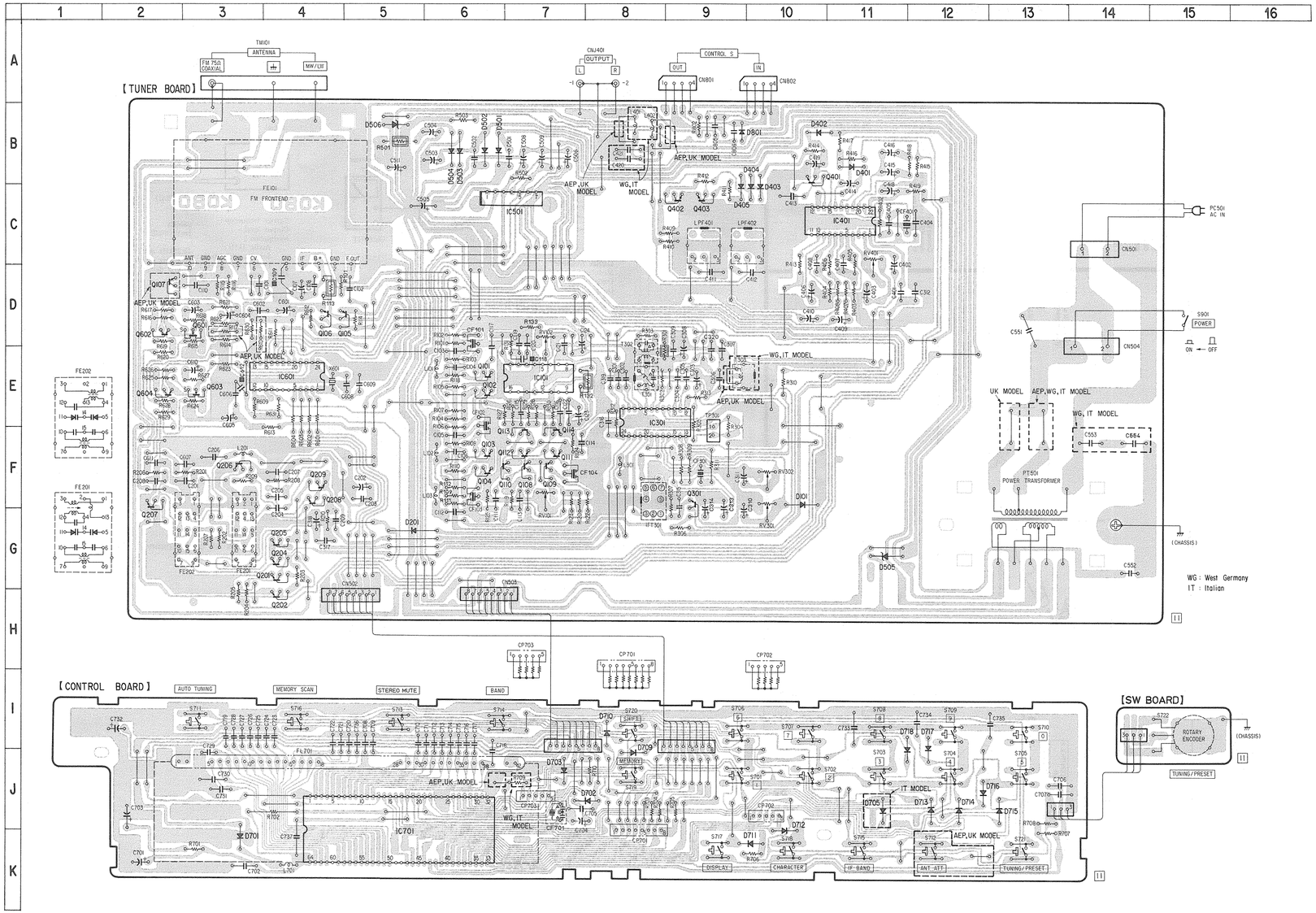
• **SEMICONDUCTOR LOCATION**

Ref. No.	Location	Ref. No.	Location
IC101	E−7	D101	F−10
IC301	E−8	D201	G−5
IC401	C−11	D401	B−11
IC501	C−7	D402	B−10
IC601	E−4		
IC701	K−5	D403	C−10
		D404	C−10
		D405	C−9
Q101	E−6	D501	B−6
Q102	E−6	D502	B−6
Q103	F−6		
Q104	F−6	D503	B−6
Q105	E−4	D504	B−6
		D505	G−11
Q106	E−4	D506	B−5
Q107	D−2	D701	K−3
Q108	F−7		
Q109	F−7	D702	J−7
Q110	F−7	D703	J−7
		D705	J−11
Q111	F−7	D709	J−8
Q112	F−7	D710	I−8
Q113	F−7		
Q114	F−7	D711	K−10
Q201	G−4	D712	K−10
		D713	J−12
Q202	H−4	D714	J−12
Q204	G−4	D715	J−13
Q205	G−4		
Q206	F−3	D716	J−12
Q207	G−2	D717	I−12
		D718	I−11
Q208	F−4	D801	B−9
Q209	F−4		
Q301	F−9		
Q401	B−10		
Q402	C−9		
Q403	C−9		
Q601	D−3		
Q602	D−2		
Q603	E−3		
Q604	E−2		

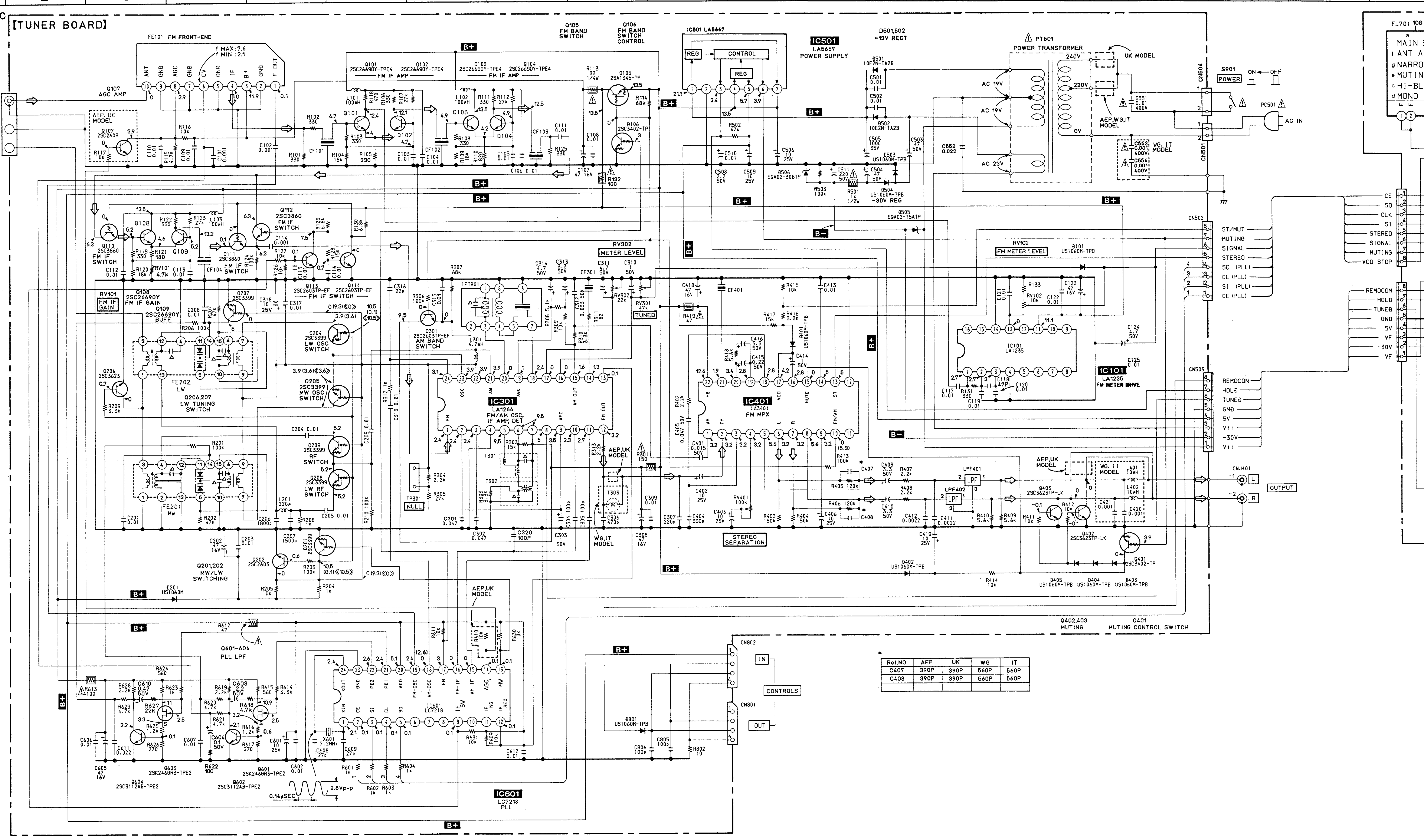
Note :

- ○— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ⊡ indicates side identified with part number.
- ▨ : Pattern on the side which is seen.
- WG : West Germany model
  IT : Italian model

3-1. PRINTED WIRING BOARDS Refer to page 15 for Semiconductor Lead Layouts.

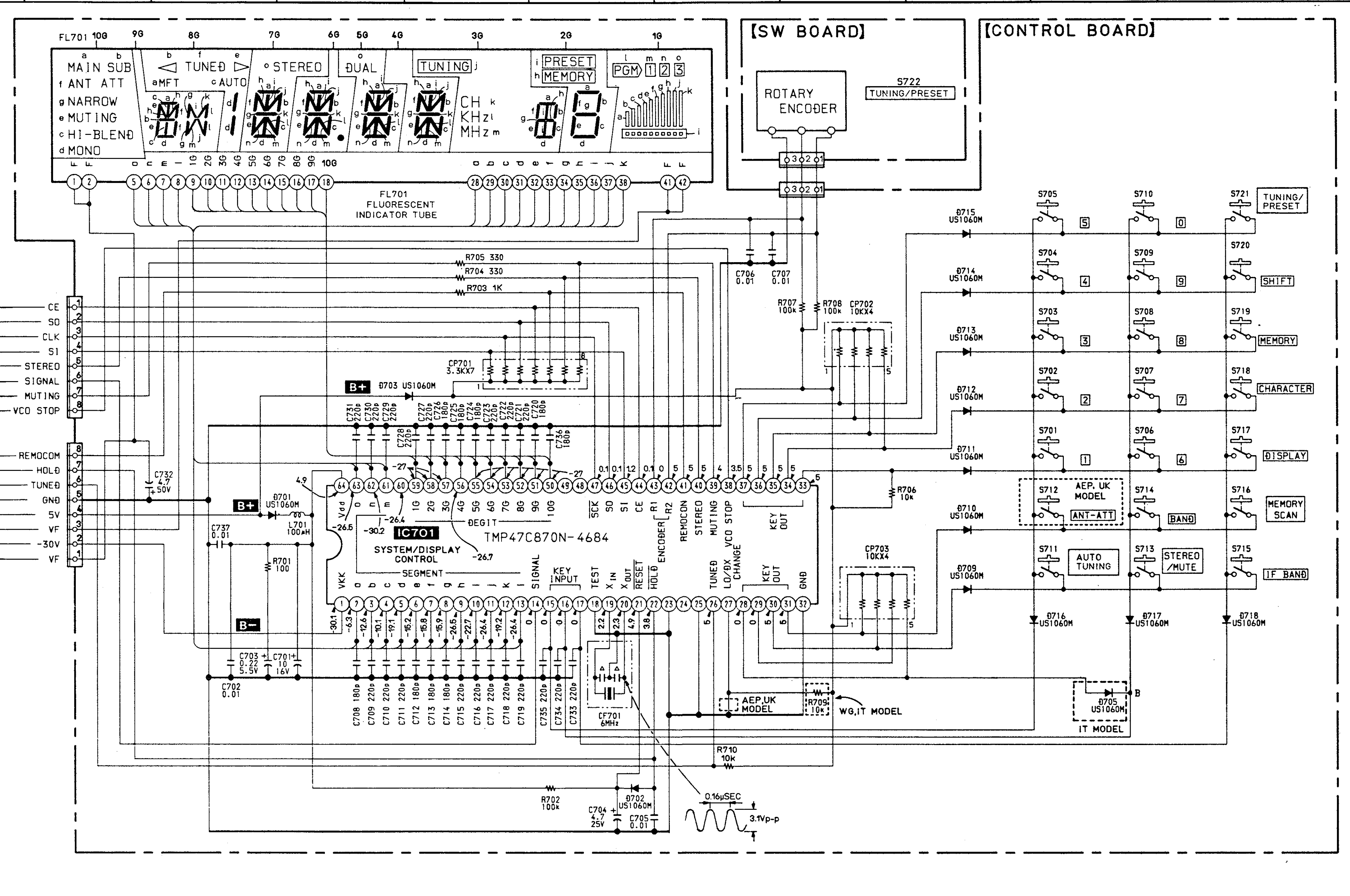


3-2. SCHEMATIC DIAGRAM



【TUNER BOARD】
FE101 FM FRONT-END
Q107 AGC AMP
TM101 ANTENNA
FM 75Ω COAXIAL
MW/LW
Q101 2SC2669OY-TPE4
Q102 2SC2669OY-TPE4
FM IF AMP
Q103 2SC2669OY-TPE4
Q104 2SC2669OY-TPE4
Q105 FM BAND SWITCH
Q106 FM BAND SWITCH CONTROL
IC501 LA5667 POWER SUPPLY
D501,502 -13V RECT
PT501 POWER TRANSFORMER
UK MODEL
AEP,WG,IT MODEL
WG, IT MODEL
S901 POWER
PC501 AC IN
RV302 METER LEVEL
RV301 TUNED
RV101 FM IF GAIN
RV102 FM METER LEVEL
IC301 LA1266 FM/AM OSC, IF AMP, DET
IC401 LA3401 FM MPX
IC101 LA1235 FM METER DRIVE
FE202 LW
FE201 MW
Q206,207 LW TUNING SWITCH
Q201,202 MW/LW SWITCHING
TP301 NULL
RV401 STEREO SEPARATION
Q402,403 MUTING
Q401 MUTING CONTROL SWITCH
CNJ401 OUTPUT
Q601-604 PLL LPF
IC601 LC7218 PLL
0.14μSEC 2.8Vp-p
CN802 IN
CN801 OUT
CONTROLS

Ref.NO	AEP	UK	WG	IT
C407	390P	390P	560P	560P
C408	390P	390P	560P	560P



FL701 FLUORESCENT INDICATOR TUBE
【SW BOARD】
ROTARY ENCODER
S722 TUNING/PRESET
【CONTROL BOARD】
IC701 TMP47C870N-4684 SYSTEM/DISPLAY CONTROL
TUNING/PRESET
SHIFT
MEMORY
CHARACTER
DISPLAY
MEMORY SCAN
IF BAND
BAND
AUTO TUNING
STEREO /MUTE
ANT-ATT
AEP, UK MODEL
WG,IT MODEL
IT MODEL
0.16μSEC 3.1Vp-p

Note :

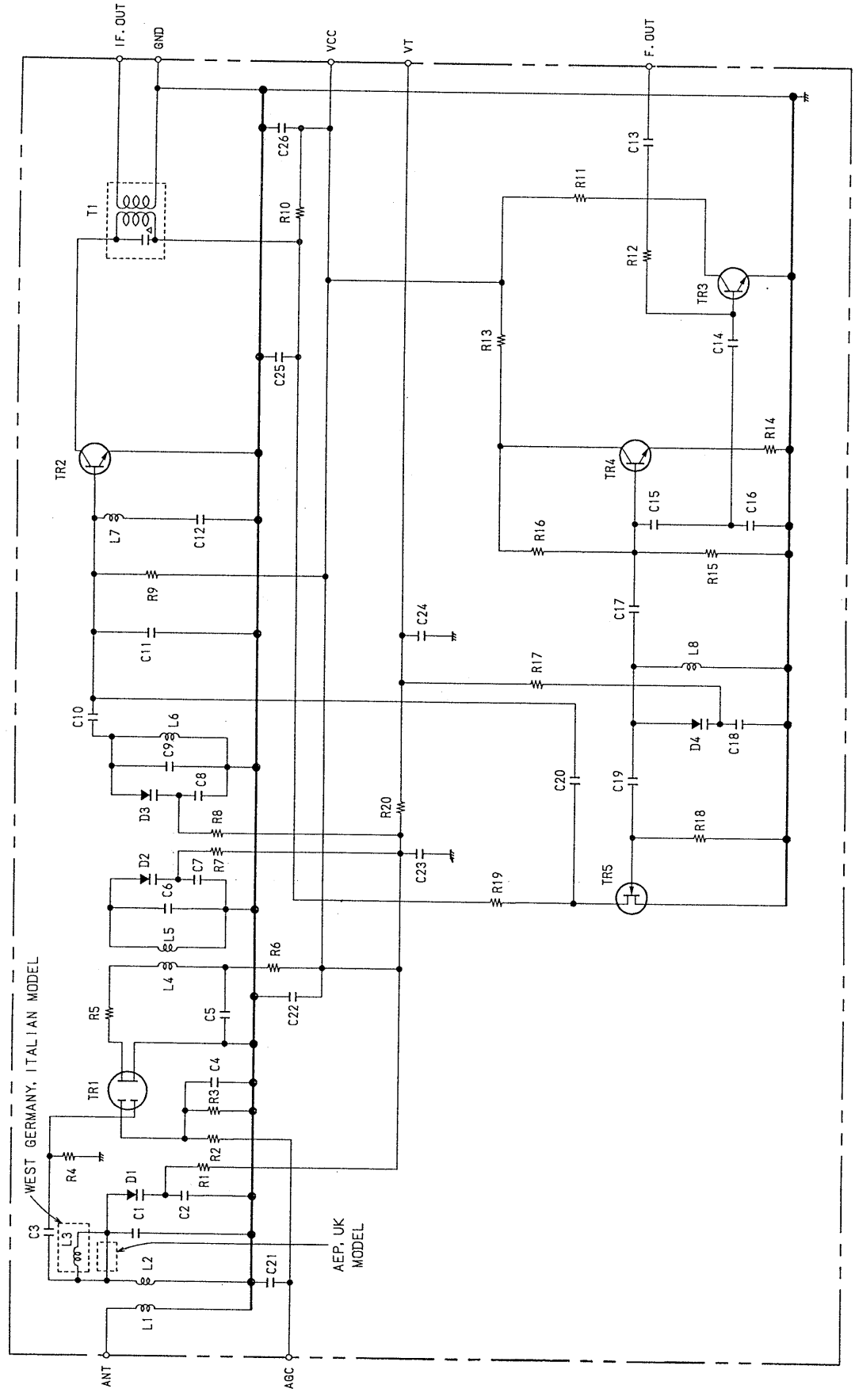
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- △ : internal component.
- [nonflammable resistor symbol] : nonflammable resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- **B+** : B+ Line
- **B−** : B− Line
- ▭ : adjustment for repair.

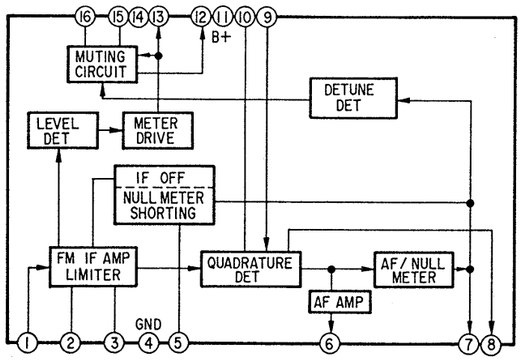
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- no mark : FM
  ( ) : MW
  《 》: LW
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
- WG : West Germany model
  IT : Italian model

3-3. FM FRONTEND (FE101) SCHEMATIC DIAGRAM

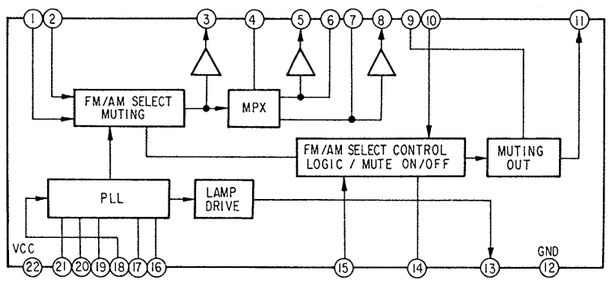


3-4. IC BLOCK DIAGRAMS

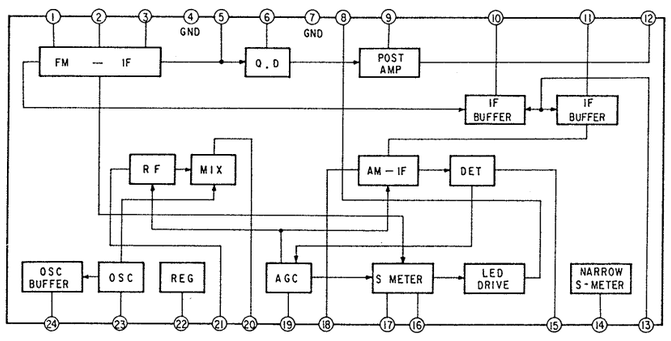
IC101 LA1235



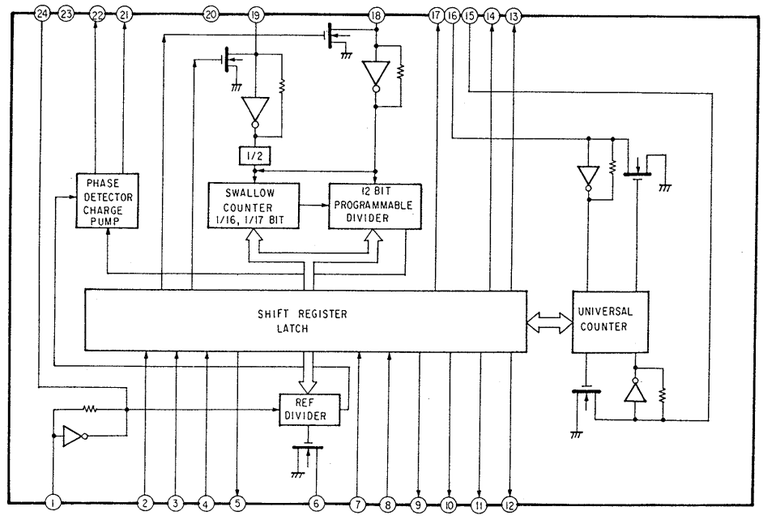
IC301 LA3401



IC401 LA1266

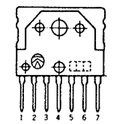


IC601 LC7218

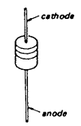


3-5. SEMICONDUCTOR LEAD LAYOUTS

LA5667

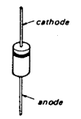


EQA02-15A
EQA02-30B
1SS120



DTA144ES
DTC114ES
DTC144ES
2SC2603-EF
2SC2669OY
2SC3623A-LK

10ESN



DTC114TS

2SC3112-B

2SK246GR3

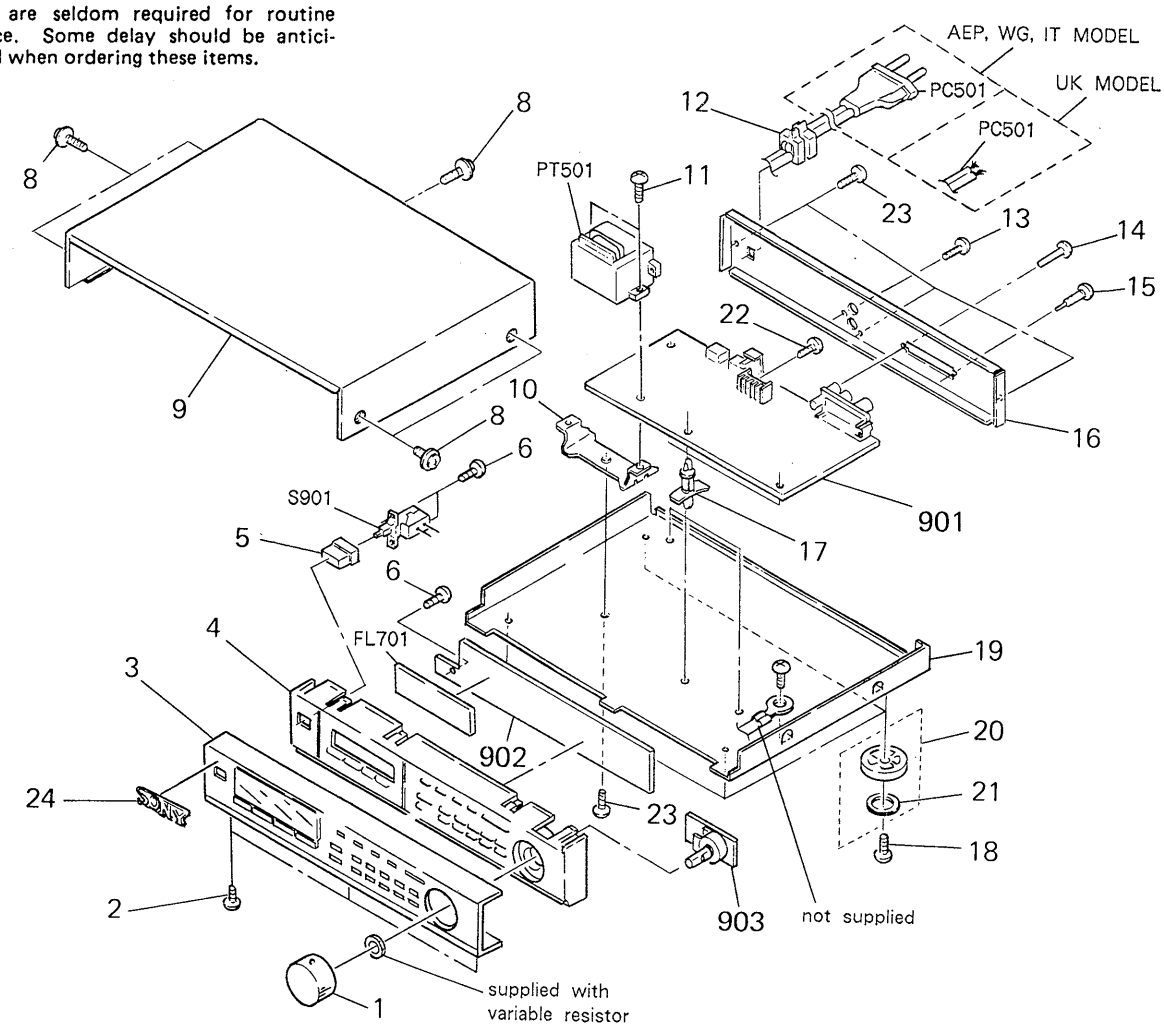
SECTION 4
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.

  • WG : West Germany model
  IT : Italian model

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.



No.	Part No.	Description	Remarks
1	4-923-463-01	KNOB	
2	7-682-548-09	SCREW +BVTT 3X8 (S)	
3	4-923-460-31	(AEP,UK)...PANEL, FRONT	
	4-923-460-41	(WG,IT)....PANEL, FRONT	
4	X-4886-038-2	(AEP,UK)...PANEL (BASE) ASSY	
	X-4886-039-1	(WG,IT)....PANEL (BASE) ASSY	
5	4-917-460-01	KNOB, POWER	
6	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
8	3-704-366-01	SCREW (CASE) (M3X8)	
9	4-923-457-01	CASE	
10	*4-917-044-01	BRACKET (PT)	
11	7-682-549-04	(AEP,UK,WG)...SCREW +BVTT 3X10 (S)	
12	*3-703-244-00	BUSHING (2104), CORD	
13	7-621-849-00	SCREW, TAPPING	
14	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
15	3-704-242-01	SCREW, TERMINAL, + BVTP CLAW	
16	*4-935-809-01	(WG)....PANEL, BACK	
	*4-935-809-11	(IT)....PANEL, BACK	
	*4-935-809-21	(AEP)...PANEL, BACK	
	*4-935-809-31	(UK)....PANEL, BACK	

No.	Part No.	Description	Remarks
17	*3-346-265-11	HOLDER, PC BOARD	
18	7-682-548-04	SCREW +BVTT 3X8 (S)	
19	*4-929-296-51	CHASSIS	
20	X-3304-938-2	FOOT ASSY	
21	4-923-836-11	CUSHION	
22	7-685-646-79	SCREW +BVTP 3X8 TYPE2	
23	7-682-547-09	SCREW +BVTT 3X6 (S)	
24	4-908-848-01	EMBLEM, SONY	
901	*A-4334-765-A	(AEP).....MOUNTED PCB, TUNER	
	*A-4334-767-A	(WG,IT)...MOUNTED PCB, TUNER	
	*A-4334-768-A	(UK)......MOUNTED PCB, TUNER	
902	*A-4334-763-A	(AEP,UK)...MOUNTED PCB, CONTROL	
	*A-4334-766-A	(WG).....MOUNTED PCB, CONTROL	
	*A-4334-771-A	(IT).....MOUNTED PCB, CONTROL	
903	*1-635-788-11	PC BOARD, SWITCH	
FL701	1-519-602-11	INDICATOR TUBE, FLUORESCENT	
PT501⚠	1-449-400-11	TRANSFORMER, POWER	
PC501⚠	1-575-651-11	(AEP,WG,IT)...CORD, POWER	
PC501⚠	1-575-652-11	(UK).....CORD, POWER	
S901 ⚠	1-554-920-21	SWITCH, PUSH (AC POWER)(1 KEY)(POWER)	

SECTION 5
EXPLODED VIEWS

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

WG : West Germany model
IT : Italian model

Ref.No.	Part No.	Description			
901	*A-4334-765-A	(AEP).....MOUNTED PCB, TUNER			
	*A-4334-767-A	(WG,IT)...MOUNTED PCB, TUNER			
	*A-4334-768-A	(UK).....MOUNTED PCB, TUNER			
902	*A-4334-763-A	(AEP,UK)...MOUNTED PCB, CONTROL			
	*A-4334-766-A	(WG).....MOUNTED PCB, CONTROL			
	*A-4334-771-A	(IT).....MOUNTED PCB, CONTROL			
903	*1-635-788-11	PC BOARD, SWITCH			
C101	1-162-294-31	CERAMIC	0.001MF	10%	50V
C102	1-162-294-31	CERAMIC	0.001MF	10%	50V
C103	1-161-379-00	CERAMIC	0.01MF	30%	16V
C104	1-161-379-00	CERAMIC	0.01MF	30%	16V
C105	1-161-379-00	CERAMIC	0.01MF	30%	16V
C106	1-161-379-00	CERAMIC	0.01MF	30%	16V
C107	1-123-332-00	ELECT	47MF	20%	16V
C108	1-161-379-00	CERAMIC	0.01MF	30%	16V
C109	1-161-379-00	CERAMIC	0.01MF	30%	16V
C110	1-161-379-00	CERAMIC	0.01MF	30%	16V
C111	1-161-379-00	CERAMIC	0.01MF	30%	16V
C112	1-161-379-00	CERAMIC	0.01MF	30%	16V
C113	1-161-379-00	CERAMIC	0.01MF	30%	16V
C114	1-162-294-31	CERAMIC	0.001MF	10%	50V
C115	1-161-379-00	CERAMIC	0.01MF	30%	16V
C116	1-161-379-00	CERAMIC	0.01MF	30%	16V
C117	1-161-379-00	CERAMIC	0.01MF	30%	16V
C118	1-162-215-31	CERAMIC	47PF	5%	50V
C119	1-161-379-00	CERAMIC	0.01MF	30%	16V
C120	1-161-379-00	CERAMIC	0.01MF	30%	16V
C121	1-161-379-00	CERAMIC	0.01MF	30%	16V
C122	1-161-379-00	CERAMIC	0.01MF	30%	16V
C123	1-123-332-00	ELECT	47MF	20%	16V
C124	1-126-163-11	ELECT	4.7MF	20%	50V
C201	1-161-379-00	CERAMIC	0.01MF	30%	16V
C202	1-123-332-00	ELECT	47MF	20%	16V
C203	1-161-379-00	CERAMIC	0.01MF	30%	16V
C204	1-161-379-00	CERAMIC	0.01MF	30%	16V
C205	1-161-379-00	CERAMIC	0.01MF	30%	16V
C206	1-102-120-00	CERAMIC	0.0018MF	10%	50V
C207	1-102-119-00	CERAMIC	0.0015MF	10%	50V
C208	1-161-379-00	CERAMIC	0.01MF	30%	16V
C209	1-161-379-00	CERAMIC	0.01MF	30%	16V
C301	1-164-098-11	CERAMIC	0.047MF		12V
C302	1-164-098-11	CERAMIC	0.047MF		12V
C303	1-124-791-11	ELECT	1MF	20%	50V
C304	1-162-282-31	CERAMIC	100PF	10%	50V

Ref.No.	Part No.	Description			
C305	1-162-282-31	CERAMIC	100PF	10%	50V
C306	1-162-290-31	CERAMIC	470PF	10%	50V
C307	1-162-286-31	CERAMIC	220PF	10%	50V
C308	1-123-332-00	ELECT	47MF	20%	16V
C309	1-161-379-00	CERAMIC	0.01MF	30%	16V
C310	1-124-438-00	ELECT	1MF	20%	50V
C311	1-126-163-11	ELECT	4.7MF	20%	50V
C312	1-136-159-00	FILM	0.033MF	5%	50V
C313	1-126-162-11	ELECT	3.3MF	20%	50V
C314	1-126-163-11	ELECT	4.7MF	20%	50V
C315	1-161-379-00	CERAMIC	0.01MF	30%	16V
C316	1-162-207-31	CERAMIC	22PF	5%	50V
C317	1-161-379-00	CERAMIC	0.01MF	30%	16V
C318	1-123-356-00	ELECT	10MF	20%	25V
C319	1-161-379-00	CERAMIC	0.01MF	30%	16V
C320	1-162-282-31	CERAMIC	100PF	10%	50V
C401	1-136-155-00	FILM	0.015MF	5%	50V
C402	1-123-356-00	ELECT	10MF	20%	25V
C403	1-123-356-00	ELECT	10MF	20%	25V
C404	1-162-288-31	CERAMIC	330PF	10%	50V
C405	1-136-161-00	FILM	0.047MF	5%	50V
C406	1-123-356-00	ELECT	10MF	20%	25V
C407	1-110-342-91	(AEP,UK)...MYLAR	390PF	5%	50V
C407	1-130-468-00	(WG,IT)....MYLAR	560PF	5%	50V
C408	1-110-342-91	(AEP,UK)...MYLAR	390PF	5%	50V
C408	1-130-468-00	(WG,IT)....MYLAR	560PF	5%	50V
C409	1-123-382-00	ELECT	3.3MF	20%	50V
C410	1-123-382-00	ELECT	3.3MF	20%	50V
C411	1-161-375-00	CERAMIC	0.0022MF	30%	16V
C412	1-161-375-00	CERAMIC	0.0022MF	30%	16V
C413	1-161-379-00	CERAMIC	0.01MF	30%	16V
C414	1-124-791-11	ELECT	1MF	20%	50V
C415	1-124-464-11	ELECT	0.22MF	20%	50V
C416	1-123-382-00	ELECT	3.3MF	20%	50V
C418	1-123-332-00	ELECT	47MF	20%	16V
C419	1-123-356-00	ELECT	10MF	20%	25V
C420	1-162-294-31	(WG,IT)...CERAMIC	0.001MF	10%	50V
C421	1-162-294-31	(WG,IT)...CERAMIC	0.001MF	10%	50V
C501	1-101-004-00	CERAMIC	0.01MF		50V
C502	1-101-004-00	CERAMIC	0.01MF		50V
C503	1-124-910-11	ELECT	47MF	20%	50V
C504	1-124-910-11	ELECT	47MF	20%	50V
C505	1-126-105-11	ELECT	1000MF	20%	35V
C506	1-123-356-00	ELECT	10MF	20%	25V

Ref.No.	Part No.	Description			
C508	1-124-925-11	ELECT	2.2MF	20%	50V
C509	1-123-356-00	ELECT	10MF	20%	25V
C511	1-124-911-11	ELECT	220MF	20%	50V
C551	1-161-744-00	CERAMIC	0.01MF		400V
C552	1-101-005-00	CERAMIC	0.022MF		50V
C553	1-161-741-00	(WG,IT)...CERAMIC	0.001MF	10%	400V
C554	1-161-741-00	(WG,IT)...CERAMIC	0.001MF	10%	400V
C601	1-123-356-00	ELECT	10MF	20%	25V
C602	1-161-379-00	CERAMIC	0.01MF	30%	16V
C603	1-124-925-11	ELECT	2.2MF	20%	50V
C604	1-124-463-00	ELECT	0.1MF	20%	50V
C605	1-123-332-00	ELECT	47MF	20%	16V
C606	1-161-379-00	CERAMIC	0.01MF	30%	16V
C607	1-161-379-00	CERAMIC	0.01MF	30%	16V
C608	1-102-961-00	CERAMIC	27PF	5%	50V
C609	1-102-961-00	CERAMIC	27PF	5%	50V
C610	1-124-902-00	ELECT	0.47MF	20%	50V
C611	1-161-379-00	CERAMIC	0.01MF	30%	16V
C612	1-161-379-00	CERAMIC	0.01MF	30%	16V
C701	1-126-157-11	ELECT	10MF	20%	16V
C702	1-161-379-00	CERAMIC	0.01MF	30%	16V
C703	1-125-486-11	DOUBLE LATERS	0.22F		5.5V
C704	1-126-094-11	ELECT	4.7MF	20%	25V
C705	1-161-379-00	CERAMIC	0.01MF	30%	16V
C706	1-161-379-00	CERAMIC	0.01MF	30%	16V
C707	1-161-379-00	CERAMIC	0.01MF	30%	16V
C708	1-162-285-31	CERAMIC	180PF	10%	50V
C709	1-162-286-31	CERAMIC	220PF	10%	50V
C710	1-162-286-31	CERAMIC	220PF	10%	50V
C711	1-162-286-31	CERAMIC	220PF	10%	50V
C712	1-162-285-31	CERAMIC	180PF	10%	50V
C713	1-162-285-31	CERAMIC	180PF	10%	50V
C714	1-162-285-31	CERAMIC	180PF	10%	50V
C715	1-162-286-31	CERAMIC	220PF	10%	50V
C716	1-162-286-31	CERAMIC	220PF	10%	50V
C717	1-162-286-31	CERAMIC	220PF	10%	50V
C718	1-162-286-31	CERAMIC	220PF	10%	50V
C719	1-162-286-31	CERAMIC	220PF	10%	50V
C720	1-162-285-31	CERAMIC	180PF	10%	50V
C721	1-162-286-31	CERAMIC	220PF	10%	50V
C722	1-162-286-31	CERAMIC	220PF	10%	50V
C723	1-162-286-31	CERAMIC	220PF	10%	50V
C724	1-162-285-31	CERAMIC	180PF	10%	50V
C725	1-162-285-31	CERAMIC	180PF	10%	50V
C726	1-162-285-31	CERAMIC	180PF	10%	50V
C727	1-162-286-31	CERAMIC	220PF	10%	50V
C728	1-162-286-31	CERAMIC	220PF	10%	50V
C729	1-162-286-31	CERAMIC	220PF	10%	50V
C730	1-162-286-31	CERAMIC	220PF	10%	50V
C731	1-162-286-31	CERAMIC	220PF	10%	50V
C732	1-126-163-11	ELECT	4.7MF	20%	50V
C733	1-162-286-31	CERAMIC	220PF	10%	50V
C734	1-162-286-31	CERAMIC	220PF	10%	50V
C735	1-162-286-31	CERAMIC	220PF	10%	50V
C736	1-162-285-31	CERAMIC	180PF	10%	50V
C737	1-161-379-00	CERAMIC	0.01MF	30%	16V
C805	1-162-282-31	CERAMIC	100PF	10%	50V
C806	1-162-282-31	CERAMIC	100PF	10%	50V

Ref.No.	Part No.	Description
CF101	*1-527-389-11	FILTER, CERAMIC
CF102	*1-527-389-11	FILTER, CERAMIC
CF103	*1-527-389-11	FILTER, CERAMIC
CF104	1-577-299-31	FILTER, CERAMIC
CF301	1-527-981-00	FILTER, CERAMIC
CF401	1-567-250-11	OSCILLATOR, CERAMIC 18.95kHz
CF701	1-577-360-11	VIBRATOR, CERAMIC 6MHz
CN501	*1-564-321-00	PIN, CONNECTOR 2P
CN502	*1-564-342-11	PIN, CONNECTOR 8P
CN503	*1-564-342-61	PIN, CONNECTOR 8P
CN504	*1-564-321-00	PIN, CONNECTOR 2P
CN801	1-564-980-11	PIN, CONNECTOR 4P
CN802	1-564-980-11	PIN, CONNECTOR 4P
CNJ401	1-565-352-11	JACK, PIN 2P (OUTPUT)
CP701	1-233-185-11	COMPOSITION CIRCUIT BLOCK
CP702	1-232-986-11	COMPOSITION CIRCUIT BLOCK
CP703	1-232-986-11	COMPOSITION CIRCUIT BLOCK
D101	8-719-022-21	DIODE 1T22A
D201	8-719-912-20	DIODE 1SS120
D401	8-719-912-20	DIODE 1SS120
D402	8-719-912-20	DIODE 1SS120
D403	8-719-912-20	DIODE 1SS120
D404	8-719-912-20	DIODE 1SS120
D405	8-719-912-20	DIODE 1SS120
D501	8-719-200-77	DIODE 10E2N
D502	8-719-200-77	DIODE 10E2N
D503	8-719-912-20	DIODE 1SS120
D504	8-719-912-20	DIODE 1SS120
D505	8-719-913-24	DIODE EQA02-15A
D506	8-719-904-93	DIODE EQA02-30B
D701	8-719-912-20	DIODE 1SS120
D702	8-719-912-20	DIODE 1SS120
D703	8-719-912-20	DIODE 1SS120
D705	8-719-912-20	DIODE 1SS120
D709	8-719-912-20	DIODE 1SS120
D710	8-719-912-20	DIODE 1SS120
D711	8-719-912-20	DIODE 1SS120
D712	8-719-912-20	DIODE 1SS120
D713	8-719-912-20	DIODE 1SS120
D714	8-719-912-20	DIODE 1SS120
D715	8-719-912-20	DIODE 1SS120
D716	8-719-912-20	DIODE 1SS120
D717	8-719-912-20	DIODE 1SS120
D718	8-719-912-20	DIODE 1SS120
D801	8-719-912-20	DIODE 1SS120
FE101	1-463-857-11	(WG,IT)....FRONT END (FM)
FE101	1-465-219-11	(AEP,UK)...FRONT END (FM)
FE201	1-236-462-11	ENCAPSULATED COMPONENT
FE202	1-236-463-11	ENCAPSULATED COMPONENT
FL701	1-519-602-11	INDICATOR TUBE, FLUORESCENT
IC101	8-759-812-35	IC LA1235
IC301	8-759-804-55	IC LA1266
IC401	8-759-801-80	IC LA3401

Ref.No.	Part No.	Description
IC501	8-759-820-09	IC LA5667
IC601	8-759-820-91	IC LC7218
IC701	8-759-239-28	IC TMP47C870N-4684
IFT301	1-404-713-11	TRANSFORMER, IF
L101	1-408-421-00	INDUCTOR 100UH
L102	1-408-421-00	INDUCTOR 100UH
L103	1-408-421-00	INDUCTOR 100UH
L201	1-408-425-00	INDUCTOR 220UH
L301	1-407-500-00	INDUCTOR 4.7MMH
L401	1-410-470-11	(WG,IT)...INDUCTOR 10UH
L402	1-410-470-11	(WG,IT)...INDUCTOR 10UH
L701	1-410-521-11	INDUCTOR 100UH
LPF401	1-235-164-00	FILTER, LOW PASS
LPF402	1-235-164-00	FILTER, LOW PASS
PC501⚠	1-575-651-11	(AEP,WG,IT)...CORD, POWER
PC501⚠	1-575-652-11	(UK).....CORD, POWER
PT501⚠	1-449-400-11	TRANSFORMER, POWER
Q101	8-729-230-99	TRANSISTOR 2SC2669OY
Q102	8-729-230-99	TRANSISTOR 2SC2669OY
Q103	8-729-230-99	TRANSISTOR 2SC2669OY
Q104	8-729-230-99	TRANSISTOR 2SC2669OY
Q105	8-729-900-65	TRANSISTOR DTA144ES
Q106	8-729-900-80	TRANSISTOR DTC114ES
Q107	8-729-620-05	(AEP,UK)...TRANSISTOR 2SC2603-EF
Q108	8-729-230-99	TRANSISTOR 2SC2669OY
Q109	8-729-230-99	TRANSISTOR 2SC2669OY
Q110	8-729-904-39	TRANSISTOR DTC114TS
Q111	8-729-904-39	TRANSISTOR DTC114TS
Q112	8-729-904-39	TRANSISTOR DTC114TS
Q113	8-729-620-05	TRANSISTOR 2SC2603-EF
Q114	8-729-620-05	TRANSISTOR 2SC2603-EF
Q201	8-729-900-89	TRANSISTOR DTC144ES
Q202	8-729-620-05	TRANSISTOR 2SC2603-EF
Q204	8-729-900-89	TRANSISTOR DTC144ES
Q205	8-729-900-89	TRANSISTOR DTC144ES
Q206	8-729-141-30	TRANSISTOR 2SC3623A-LK
Q207	8-729-900-89	TRANSISTOR DTC144ES
Q208	8-729-900-89	TRANSISTOR DTC144ES
Q209	8-729-900-89	TRANSISTOR DTC144ES
Q301	8-729-620-05	TRANSISTOR 2SC2603-EF
Q401	8-729-900-80	TRANSISTOR DTC114ES
Q402	8-729-141-30	TRANSISTOR 2SC3623A-LK
Q403	8-729-141-30	TRANSISTOR 2SC3623A-LK
Q601	8-729-202-67	TRANSISTOR 2SK246GR3
Q602	8-729-201-84	TRANSISTOR 2SC3112-B
Q603	8-729-202-67	TRANSISTOR 2SK246GR3
Q604	8-729-201-84	TRANSISTOR 2SC3112-B
R101	1-249-411-11	CARBON 330 5% 1/4W
R102	1-249-411-11	CARBON 330 5% 1/4W
R103	1-249-411-11	CARBON 330 5% 1/4W
R104	1-249-432-11	CARBON 18K 5% 1/4W
R105	1-249-411-11	CARBON 330 5% 1/4W
R106	1-249-411-11	CARBON 330 5% 1/4W
R107	1-249-434-11	CARBON 27K 5% 1/4W
R108	1-249-411-11	CARBON 330 5% 1/4W
R109	1-249-432-11	CARBON 18K 5% 1/4W

Ref.No.	Part No.	Description			
R110	1-249-411-11	CARBON	330	5%	1/4W
R111	1-249-411-11	CARBON	330	5%	1/4W
R112	1-249-434-11	CARBON	27K	5%	1/4W
R113 ⚠	1-249-399-11	CARBON	33	5%	1/4W F
R114	1-249-439-11	CARBON	68K	5%	1/4W
R115	1-249-425-11	CARBON	4.7K	5%	1/4W
R116	1-249-429-11	CARBON	10K	5%	1/4W
R117	1-249-429-11	(AEP,UK)...CARBON	10K	5%	1/4W
R118	1-249-413-11	CARBON	470	5%	1/4W
R119	1-249-411-11	CARBON	330	5%	1/4W
R120	1-249-432-11	CARBON	18K	5%	1/4W
R121	1-249-408-11	CARBON	180	5%	1/4W
R122	1-249-411-11	CARBON	330	5%	1/4W
R123	1-249-434-11	CARBON	27K	5%	1/4W
R124	1-249-441-11	CARBON	100K	5%	1/4W
R125	1-249-411-11	CARBON	330	5%	1/4W
R126	1-249-429-11	CARBON	10K	5%	1/4W
R127	1-249-429-11	CARBON	10K	5%	1/4W
R128	1-249-431-11	CARBON	15K	5%	1/4W
R129	1-249-427-11	CARBON	6.8K	5%	1/4W
R130	1-249-427-11	CARBON	6.8K	5%	1/4W
R131	1-249-411-11	CARBON	330	5%	1/4W
R132 ⚠	1-249-405-11	CARBON	100	5%	1/4W F
R133	1-249-431-11	CARBON	15K	5%	1/4W
R201	1-249-441-11	CARBON	100K	5%	1/4W
R202	1-249-437-11	CARBON	47K	5%	1/4W
R203	1-249-441-11	CARBON	100K	5%	1/4W
R204	1-249-417-11	CARBON	1K	5%	1/4W
R205	1-249-429-11	CARBON	10K	5%	1/4W
R206	1-249-441-11	CARBON	100K	5%	1/4W
R207	1-249-437-11	CARBON	47K	5%	1/4W
R208	1-247-903-00	CARBON	1M	5%	1/4W
R209	1-249-423-11	CARBON	3.3K	5%	1/4W
R210	1-249-441-11	CARBON	100K	5%	1/4W
R301 ⚠	1-249-407-11	CARBON	150	5%	1/4W F
R302	1-249-431-11	CARBON	15K	5%	1/4W
R303	1-249-423-11	CARBON	3.3K	5%	1/4W
R304	1-249-421-11	CARBON	2.2K	5%	1/4W
R305	1-249-434-11	CARBON	27K	5%	1/4W
R306	1-249-441-11	CARBON	100K	5%	1/4W
R307	1-249-439-11	CARBON	68K	5%	1/4W
R308	1-247-848-11	CARBON	5.1K	5%	1/4W
R309	1-249-429-11	CARBON	10K	5%	1/4W
R310	1-249-423-11	CARBON	3.3K	5%	1/4W
R311	1-249-404-00	CARBON	82	5%	1/4W
R312	1-249-417-11	CARBON	1K	5%	1/4W
R313	1-249-421-11	CARBON	2.2K	5%	1/4W
R402	1-249-421-11	CARBON	2.2K	5%	1/4W
R403	1-247-883-00	CARBON	150K	5%	1/4W
R404	1-247-883-00	CARBON	150K	5%	1/4W
R405	1-247-881-00	CARBON	120K	5%	1/4W
R406	1-247-881-00	CARBON	120K	5%	1/4W
R407	1-249-421-11	CARBON	2.2K	5%	1/4W
R408	1-249-421-11	CARBON	2.2K	5%	1/4W
R409	1-249-426-11	CARBON	5.6K	5%	1/4W
R410	1-249-426-11	CARBON	5.6K	5%	1/4W
R411	1-249-429-11	CARBON	10K	5%	1/4W

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description				
R412	1-249-429-11	CARBON	10K	5%	1/4W	
R413	1-249-441-11	CARBON	100K	5%	1/4W	
R414	1-249-429-11	CARBON	10K	5%	1/4W	
R415	1-249-429-11	CARBON	10K	5%	1/4W	
R416	1-249-423-11	CARBON	3.3K	5%	1/4W	
R417	1-249-431-11	CARBON	15K	5%	1/4W	
R418	1-249-426-11	CARBON	5.6K	5%	1/4W	
R419	⚠1-249-401-11	CARBON	47	5%	1/4W	F
R501	⚠1-247-752-11	CARBON	1K	5%	1/2W	F
R502	1-249-437-11	CARBON	47K	5%	1/4W	
R503	1-249-441-11	CARBON	100K	5%	1/4W	
R601	1-249-417-11	CARBON	1K	5%	1/4W	
R602	1-249-417-11	CARBON	1K	5%	1/4W	
R603	1-249-417-11	CARBON	1K	5%	1/4W	
R604	1-249-417-11	CARBON	1K	5%	1/4W	
R609	1-249-429-11	CARBON	10K	5%	1/4W	
R610	1-249-429-11	(AEP,UK)...CARBON	10K	5%	1/4W	
R611	1-249-429-11	CARBON	10K	5%	1/4W	
R612	⚠1-249-401-11	CARBON	47	5%	1/4W	F
R613	⚠1-249-405-11	CARBON	100	5%	1/4W	F
R614	1-249-423-11	CARBON	3.3K	5%	1/4W	
R615	1-249-414-11	CARBON	560	5%	1/4W	
R616	1-249-418-11	CARBON	1.2K	5%	1/4W	
R617	1-249-410-11	CARBON	270	5%	1/4W	
R618	1-249-425-11	CARBON	4.7K	5%	1/4W	
R619	1-249-421-11	CARBON	2.2K	5%	1/4W	
R620	1-249-425-11	CARBON	4.7K	5%	1/4W	
R621	1-249-425-11	CARBON	4.7K	5%	1/4W	
R622	1-249-405-11	CARBON	100	5%	1/4W	
R623	1-249-417-11	CARBON	1K	5%	1/4W	
R624	1-249-414-11	CARBON	560	5%	1/4W	
R625	1-249-418-11	CARBON	1.2K	5%	1/4W	
R626	1-249-410-11	CARBON	270	5%	1/4W	
R627	1-249-433-11	CARBON	22K	5%	1/4W	
R628	1-249-421-11	CARBON	2.2K	5%	1/4W	
R629	1-249-425-11	CARBON	4.7K	5%	1/4W	
R630	1-249-429-11	CARBON	10K	5%	1/4W	
R631	1-249-429-11	CARBON	10K	5%	1/4W	
R701	1-249-405-11	CARBON	100	5%	1/4W	
R702	1-249-441-11	CARBON	100K	5%	1/4W	
R703	1-249-417-11	CARBON	1K	5%	1/4W	
R704	1-249-411-11	CARBON	330	5%	1/4W	
R705	1-249-411-11	CARBON	330	5%	1/4W	
R706	1-249-429-11	CARBON	10K	5%	1/4W	
R707	1-249-441-11	CARBON	100K	5%	1/4W	
R708	1-249-441-11	CARBON	100K	5%	1/4W	
R709	1-249-429-11	(WG,IT)...CARBON	10K	5%	1/4W	
R710	1-249-429-11	CARBON	10K	5%	1/4W	
R802	1-249-393-11	CARBON	10	5%	1/4W	
RV101	1-238-599-11	RES, ADJ, CARBON 4.7K				
RV102	1-238-600-11	RES, ADJ, CARBON 10K				
RV301	1-238-602-11	RES, ADJ, CARBON 47K				
RV302	1-238-601-11	RES, ADJ, CARBON 22K				
RV401	1-238-603-11	RES, ADJ, CARBON 100K				

Ref.No.	Part No.	Description
S701	1-554-303-21	SWITCH, KEY BOARD (1)
S702	1-554-303-21	SWITCH, KEY BOARD (2)
S703	1-554-303-21	SWITCH, KEY BOARD (3)
S704	1-554-303-21	SWITCH, KEY BOARD (4)
S705	1-554-303-21	SWITCH, KEY BOARD (5)
S706	1-554-303-21	SWITCH, KEY BOARD (6)
S707	1-554-303-21	SWITCH, KEY BOARD (7)
S708	1-554-303-21	SWITCH, KEY BOARD (8)
S709	1-554-303-21	SWITCH, KEY BOARD (9)
S710	1-554-303-21	SWITCH, KEY BOARD (0)
S712	1-554-303-21	(AEP,UK)...SWITCH, KEY BOARD (ANT ATT)
S711	1-554-303-21	SWITCH, KEY BOARD (AUTO TUNING)
S713	1-554-303-21	SWITCH, KEY BOARD (STEREO/MUTE)
S714	1-554-303-21	SWITCH, KEY BOARD (BAND)
S715	1-554-303-21	SWITCH, KEY BOARD (IF BAND)
S716	1-554-303-21	SWITCH, KEY BOARD (MEMORY SCAN)
S717	1-554-303-21	SWITCH, KEY BOARD (DISPLAY)
S718	1-554-303-21	SWITCH, KEY BOARD (CHARACTER)
S719	1-554-303-21	SWITCH, KEY BOARD (MEMORY)
S720	1-554-303-21	SWITCH, KEY BOARD (SHIFT)
S721	1-554-303-21	SWITCH, KEY BOARD (TUNING/PRESET)
S722	1-466-067-11	ENCORDER, ROTALY (TUNING/PRESET)
S901	⚠1-554-920-21	SWITCH, PUSH (AC POWER)(1 KEY)(POWER)
T301	1-404-743-11	COIL, DISCRIMINATOR
T302	1-404-742-11	COIL, DISCRIMINATOR
T303	1-236-465-11	(WG,IT)...ENCAPSULATED COMPONENT
TM101	*1-537-138-31	TERMINAL BOARD (ANTENNA)
TP301	*1-560-060-00	PIN, CONNECTOR 2P
X601	1-577-126-11	VIBRATOR, CRYSTAL 7.2MHz

ACCESSORY & PACKING MATERIAL

1-501-269-11	(AEP,UK,IT)...ANTENNA
1-501-374-11	ANTENNA, LOOP
1-558-233-11	CORD (WITH CONNECTOR)(SIRCS) 4P
1-559-533-11	CORD, CONNECTION
3-751-338-11	(AEP,UK,IT)...MANUAL, INSTRUCTION
3-751-338-41	(AEP,WG).....MANUAL, INSTRUCTION
*3-704-343-01	SHEET (STANDARD), PROTECTION
*4-917-056-41	INDIVIDUAL CARTON
*4-917-074-01	CUSHION

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Audio Group

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